REMARKS/ARGUMENTS

The Office Action of May 5, 2003, has been carefully considered. It is noted that claim 20 is rejected under 35 U.S.C. §112, second paragraph.

Claims 20-21, 25-26, 29, 34-39, 49, 52-57 and 65 are rejected under 35 U.S.C. §102(b) over the patent to Blakeley et al.

Claims 22, 28, 30-33 and 45 are rejected under 35 U.S.C. §103(a) over Blakeley et al.

Claims 23, 24, 27, 42-44, 46-48 and 60 are rejected under 35 U.S.C. §103(a) over Blakeley et al. in view of the patent to Reese, Jr.

Claim 40 is rejected under 35 U.S.C. §103(a) over Blakeley et al. in view of Reese, Jr., and further in view of European reference 0528131 to Kawai.

Claim 41 is rejected under 35 U.S.C. §103(a) over Blakeley et al. in view of Kawai.

Claims 50-51 are rejected under 35 U.S.C. §103(a) over Blakeley et al. in view of the patent to Komai et al.

In view of the Examiner's rejections of the claims, Applicant has amended claims 20 and 65 and added new claim 66.

It is respectfully submitted that the claims presently on file particularly point out and distinctly claim subject matter which Applicant regards as the invention. Applicant has amended claim 20 to address the instances of indefiniteness cited by the Examiner. Concerning the "connecting point," Applicant has revised this to be a -- connection --. Thus, as presently written, claim 20 recites that the length of the insert that projects from the plastic material forms a connection for connecting attachment means. Concerning the phrase "to equilibrate the plastic modulus and the coefficient of thermal expansion between the plastic material and the insert," Applicant respectfully submits that the Examiner has taken this passage out of context. This passage helps to define the structural limitation of the coupling layer. The claim clearly recites that the coupling layer has a volume fraction of fibers, type of fibers, length of fibers and alignment of fibers or fiber layers so that the elastic modulus and/or the coefficient of thermal expansion change uniformly or in a stepwise manner whereby the elastic modulus and the coefficient of thermal expansion between the plastic material and the insert are equilibrated so that differences in at least one of the elastic modulus and the coefficient of thermal expansion at an interface between the plastic material and the insert are

minimized. Applicant submits that the language mentioned by the Examiner clearly refers to the structure of the coupling layer since the coupling layer has a specific structure to provide the equilibration recited. The equilibration should not be read by itself, but instead is to be read together with the recitation of the coupling layer structure mentioned above. Concerning the term "equilibrate," Applicant has enclosed herewith for the Examiner's perusal a copy of the definition of this term taken from Merriam-Webster online. As can be seen from the attached sheet, equilibrate means "to bring into or keep in equilibrium." Concerning the phrase "having a volume fraction of fibers, type of fibers, length of fibers and fiber layers so that at least one of the elastic modulus and coefficient of thermal expanse is changeable", Applicant refers to the discussion above in connection with the passage beginning with "to equilibrate ...". The same discussion applies equally here. The volume fraction of fibers, type of fibers, length of fibers, and fiber layers are clearly structural details of the coupling layer. These structural features are provided so that the elastic modulus and/or the coefficient of thermal expansion changes uniformly or in a stepwise manner. Applicant respectfully submits that this is clearly a structural limitation since the volume fraction of fibers, type of fibers, length of fibers and alignment of fibers or fiber layers are all structural features. The Examiner also states that it is "unclear what the claimed volume fraction of fibers, type of fibers, length of fibers and fiber layers are". These features are structural features of the coupling layer, i.e., the fibers which make up the coupling layer. The volume fraction, type, length and alignment of these fibers is such to provide the change in at least one of the elastic modulus and the coefficient of thermal expansion in a uniform or stepwise manner. Those skilled in the art will readily understand what is meant by this passage. Why the Examiner would assume that the elastic modulus is different for the plastic and insert and the coefficient of thermal expansion would be almost the same, is not understood. Concerning the phrase "changeable," Applicant has revised this to read -- changes --. Concerning the phrase "type of fiber," the Examiner is correct that this does refer to differences in the fibers. These differences can be chemical, physical, or any other type of difference which provides the necessary change in elastic modulus and/or coefficient of thermal expansion. The term "are reduced" has been changed to -- minimized --. Applicant believes this is a more definite term which should be acceptable. Concerning the term "abrupt," Applicant does not see where this term appears in the claim.

Once again Applicant respectfully submits that the claims presently on file particularly point out and distinctly claim the subject matter which the Applicant regards as the invention. Should the Examiner still have difficulty with language in the claims, he is urged to telephone the undersigned to resolve any further formal issues.

In view of these considerations it is respectfully submitted that the rejection of claim 20 under 35 U.S.C. §112, second paragraph, is overcome and should be withdrawn.

It is respectfully submitted that the claims presently on file differ essentially and in an unobvious, highly advantageous manner from the constructions disclosed in the references.

Turning now to the references, and particularly to the patent to Blakeley et al., it can be seen that this patent discloses a root attachment or turbine blade that is integrally molded with a composite turbine blade for a ram air turbine. The Examiner refers to column 4, line 59 through column 5, line 21, and Figure 1 of Blakeley et al. as disclosing an insert and a coupling layer to join the insert to the plastic material. Applicant does not follow the Examiner's line of reasoning. Blakeley et al. disclose a composite turbine blade 1 which corresponds to the plastic structure element according to the presently claimed invention. The composite blade comprises a root attachment 2 (which corresponds to the insert according to the present invention) with an insert portion 3 (which corresponds to the length of the insert embedded in the plastic material), where this insert portion 3 is integrally molded within the composite material of the turbine blade (see column 4, line 59-column 5, line 1). Furthermore, Blakeley et al. in column 5, lines 1-21 a composition of the composite material and the process of integrally molding the insert portion 3 within the composite material. Blakeley does not, however, disclose an intermediate layer between the insert portion and the composite material which could be construed as a coupling layer as in the presently claimed invention. Furthermore, Blakeley et al. do not disclose an intermediate layer at all. Figures 4-9 of Blakeley et al. are cross-sectional views through the composite turbine blade having the integrally embedded insert portion 3. There is no intermediate layer to be seen between the composite material and the insert portion 3. Therefore, Blakeley et al. do not disclose a coupling layer in the properties recited in the presently claimed invention , nor do they in any way disclose any time of intermediate layer between the composite material and the insert portion.

Applicant also wishes to point out that Applicant could not find some of the subject matter

referenced by the Examiner in Blakeley et al. Specifically, Applicant could not find at column 2, lines 30-45 a "layer of a turbine blade." Furthermore, Applicant could not find any disclosure at lines 1-21 of column 5 of "intermediate fiber-reinforced layer of turbine blade." Thus, it is respectfully submitted that Blakeley et al. does not disclose the presently claimed invention.

Concerning claim 65, Blakeley et al. does not disclose an insert portion having at least one aperture through at least one of the reinforcing fibers, fiber strands and textile type materials are looped and are embedded in and intermitinly joined to the plastic matrix of the composite material, as in the presently claimed invention. The projections of Blakeley et al. are designed to anchor the insert portion within the composite material. Thus, they are anchor elements. Furthermore, the small projections are attached to the "bulky" body of the insert portion and therefore do not reduce the geometrical moment of inertia of the embedded length.

In the presently claimed invention as recited in claim 66, the embedded length of the insert is one of strip shaped and finger shaped.

In view of these considerations, it is respectfully submitted that the rejection of claims 20, 21, 25, 26, 29, 34-39, 49, 52-57 and 65 under 35 U.S.C. §102(b) of the above-discussed reference is overcome and should be withdrawn.

As for the remaining references which were cited in those combinations with Blakeley et al. in rejecting various of the dependent claims, these references have also been considered. Since they do not come closer to the presently claimed subject matter than the reference discussed above, it is believed that any detailed comments thereon at this time would be superfluous. None of the additional references cited by the Examiner teach the features discussed above in connection with Blakeley et al. Furthermore, a number of the additionally cited references have been discussed in previous Amendments and those discussions are incorporated herein by reference.

In view of these considerations, it is respectfully submitted that the rejections of claims 22-24, 27, 28, 30-33, 40-48, and 60 under 35 U.S.C. §103(a) are overcome and should be withdrawn.

Reconsideration and allowance of the present application are respectfully requested.

Favorable action on the present application is respectfully requested.

In the event the actual fee is greater than the payment submitted or is inadvertently not enclosed or if any additional fee during the prosecution of this application is not paid, the Patent Office is authorized to charge the underpayment to Deposit Account No. 15-0700.

I hereby certify that this correspondence is being deposited with the United States Postal Service with sufficient postage as First Class Mail in an envelope addressed to: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450, on August 5, 2003:

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Respectfully submitted,

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